ILLINOIS SMART GRID ADVISORY COUNCIL

GUIDANCE REGARDING
IMPLEMENTATION OF TIME OF USE RATES

Contents

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GUIDANCE ON THE DEVELOPMENT OF TIME-OF-USE RATES IN ILLINOIS

Overview

The Illinois Smart Grid Advisory Council ("SGAC") was established pursuant to the Energy Infrastructure Modernization Act ("EIMA"), 220 ILCS 5/16-108.6(b), to advise public utilities investing in matters relating to Smart Grid electric system upgrades, including the deployment of advanced metering infrastructure ("AMI"), pursuant to Section 16-108.5 and 16-108.6 of the PUA. Illinois currently has two participating utilities: the Commonwealth Edison Company ("ComEd") and the Ameren Illinois Company ("Ameren").

Over the past few months, the SGAC has convened two meetings with ComEd and Ameren to discuss the benefits and development of Time-of-Use ("TOU") rates enabled by AMI technology:

- On January 31, 2013, the SGAC heard presentations from ComEd, the Illinois Competitive Energy Association, and Noble Americas Energy Solutions regarding the experience of ComEd offering TOU rates, the value of TOU rates to consumers in deregulated states, and the role of customer education and rate design in the adoption of TOU rates by customers.

- On February 19, 2013, the SGAC heard presentations from ComEd, the Environmental Defense Fund, the Center for Neighborhood Technologies and SGAC member Martin Cohen on the experience of Real-Time Pricing ("RTP") programs in Illinois, the potential benefits of TOU for customers, and the ways that TOU can promote distributed generation investments (including electric vehicles) and make use of smart grid investments mandated by the EIMA. One specific proposal for a TOU rate was presented — Peak Efficiency Pricing ("PEP")—which builds upon the existing RTP programs to create a TOU rate offering for utility supply customers.

On March 14, 2013, the SGAC met to discuss the potential for customer benefits of TOU rates and adopted the following conclusions:

Benefits of TOU Rates

The SGAC recognizes that one of the primary consumer benefits of AMI deployment will be the opportunity to provide customers with enhanced dynamic pricing options, including TOU rates.

The cost-benefit analysis upon which Ameren's AMI Plan was approved explicitly relied upon customers obtaining lower energy prices or reducing use in response to TOU rates, among other time-based pricing structures. ComEd and Ameren have also asserted that time-based rate options can benefit customers, in concurrence with the conclusion of the Illinois Statewide Smart Grid Collaborative.

Nationally, TOU rates are the most prevalent time-based rate programs offered by utilities using federal Smart Grid Implementation Grant Program funds, with approximately 280,000 customers enrolled nationwide.[1] These rates incent customers to shift their electricity usage from peak to off-peak times as well as to reduce overall usage, which in turn can lower wholesale electricity prices and provide environmental and societal benefits from decreased electricity consumption.

TOU pricing structures follow generally accepted regulatory principles of cost-causation by charging higher rates during peak hours when the cost of producing electricity is generally higher and lower rates during off-peak hours. The basic rate structure builds upon pricing already familiar to many customers through cell phones, airline tickets, and other time-based pricing regimes.

The presentations made to the SGAC demonstrate clearly that customer education will be a key component of any successful TOU rate adoption. Without effective customer engagement, both ComEd and Ameren expressed concern that any TOU rate offering would have very low customer participation rates. The SGAC discussed with the utilities, the ARES representatives and other organizations how all groups will need to work over the coming years to help raise customer awareness and acceptance of TOU rates.

TOU Rate Design

TOU rates divide the day into periods with different prices (sometimes with differing periods and ratios for different seasons, weekends and holidays). A simple TOU rate structure is the easiest for consumers to understand and, in turn, respond to. While a TOU may have multiple peak periods, including "super peak" prices with higher prices for a short period of time, many simply have two prices: peak and off-peak. Based upon observed TOU rate designs from research provided to the SGAC, the most common peak period designation is from noon to 8 PM, though winter peaks are often two hour blocks either in the morning or early evening (sometimes both), and there is a wide range of peak to off-peak prices. Nationally, almost all TOU rates have at least a one-year term with an automatic re-enrollment provision. The cost-basis for any TOU can – and should – change over time as the wholesale market changes. Experience in TOU programs around the country has demonstrated that a ratio of at least a 2:1 between peak and off-peak prices is necessary to elicit a significant usage response from residential customers.

[1] United States Department of Energy, "Demand Reductions From the Application of Advanced Metering Infrastructure, Pricing Programs and Customer-Based Systems – Initial Results," December 2012 at page 15.

TOU in Illinois

Illinois' largest public utilities will invest approximately $1.7 billion in AMI infrastructure, with widespread deployment of AMI beginning in 2014. The opportunity for residential and small commercial customers to access well-designed TOU rates will be a key element in maximizing consumer benefits from these investments.

The SGAC understands that Illinois utilities have questions regarding whether they could offer a TOU to utility-supplied customers under existing Illinois law and administrative rules. Those issues must be addressed through the regulatory and legal process over time. However, all parties agree that the eventual existence of a robust set of time-based rate options available to all customers is in the best interest of Illinois.

Once the infrastructure and systems are in place to support TOU offerings by ARES, the initial question before the Illinois Commerce Commission ("ICC") will be how to determine whether the offerings of Illinois' alternative retail electric suppliers ("ARES") include a sufficient set of TOU rate options to adequately serve the public interest.

The SGAC notes that based on information presented to it, even in those restructured states with a utility-offered TOU, the retail supply market can flourish. For example, there are dozens of suppliers and even more pricing offers in the 16 states ComEd identified as restructured states where the incumbent utility offers TOU. ARES can offer their own TOU rate plans in restructured states where the utility offers TOU. For example, Direct Energy offers a TOU rate in PPL (PA) territory – among 44 suppliers offering fixed price products in that territory.

The SGAC understands that in order for TOU rates to be offered, electronic data exchange infrastructure and protocols need to be in place to allow ARES to access real-time data and utilize existing billing infrastructure and programs, such as the Utility Consolidated Billing/Purchase of Receivables program. The SGAC also understands that both ComEd and Ameren have expressed concerns over whether or not they could offer a TOU rate within the existing approved tariff and statutory framework. Utility investment in the necessary data exchange and billing infrastructure is anticipated to be part of the overall deployment of AMI and related systems.

Conclusion

The SGAC understands that deployment of AMI will begin later in 2013, and accelerate over the next year. As AMI is deployed across Illinois, benefits should be maximized for utility customers, who are financing the AMI investment. Dynamic pricing options that facilitate household energy management and promote improved efficiency and potential cost-savings are essential to generating customer benefits from AMI deployment. In order to encourage retail marketers to offer and actively market TOU rates, the SGAC recommends that ComEd and Ameren design their electronic data exchange processes and meter data management systems to enable ARES to offer TOU rates. At the same time, the utilities should consider the best options

for utility-provided TOU options, should they be deemed appropriate and customer beneficial by the ICC.

The SGAC understands that both ComEd and Ameren have offered to work with the ICC to make a TOU rate available if the retail market does not develop competitive TOU rate structures within a reasonable time after AMI deployment. In order to promote and evaluate the development of TOU rate options, the SGAC proposes the following steps for the ICC's consideration.

The SGAC recommends that customer education efforts explaining the value of time-based and dynamic pricing programs be undertaken by the utilities, ICC and other stakeholders, including SGAC member organizations. The SGAC recommends that ComEd and Ameren work with the ARES community to design and implement the billing, electronic data exchange and other necessary utility infrastructure to support TOU rate offerings by the time deployment is accelerated in 2014. Within a reasonable period of time after completing development and implementation of necessary systems and reaching a threshold level of AMI deployment (for example, once deployment has been made to those municipal areas with relatively high levels of RTP or PTR adoption, those areas with aggregation contracts focused on renewable or clean energy investment, or deployment to 20% of customers within a utility service territory), the ICC should ask each ARES to report what TOU rate offerings are available and how many customers have chosen a TOU rate. At that time, the ICC should consider whether or not to order Ameren and ComEd to offer a TOU option for residential and small commercial customers with AMI meters that purchase supply through the utility.

As one example of a utility TOU, the SGAC recommends the ICC consider a proposal known as "Peak Efficiency Pricing" (PEP) as a means to enhance existing RTP programs for both ComEd and Ameren customers. PEP would be an enhanced form of RTP pricing; marketed and run by a third party administrator in the same manner as today's utility RTP programs:

1. Peak and off-peak periods would be designated, for example, with peak periods from 6 AM to 6 PM on weekdays and all other hours designated as "discount" periods.

2. Energy would be procured from wholesale hourly (or day ahead) markets to provide energy for program participants, as in the existing real-time pricing programs.

3. Retail prices would be set at a fixed 2-1 ratio, including all volumetric elements, between Peak and Discount periods. In other words, electricity would always cost participants half as much off-peak as on-peak.[2]

4. Retail prices would be set each month at a level targeted to produce revenue equal to the combined costs of energy and delivery for participating customers (with transmission and distribution charges incorporated at standard tariffed rates), plus the incremental costs of operating the program and an adjustment to reconcile the previous month. The energy

[2] The 2-1 ratio is used because it has been shown to be a minimum differential to motivate significant usage changes. The ratio could be higher if warranted by market conditions or behavioral goals.

component of the bundled rate would be based on forecasts of wholesale market prices overlaid with participants' projected total usage in each hour.[3]

The SGAC recognizes that a range of operational and policy issues would need to be addressed in designing such a utility TOU program, including:

- Whether there should be a minimum number of participants;
- Whether non-residential customers, such as small commercial customers, should be eligible;
- Whether there should be participation requirements, such a minimum commitment to the TOU rate once enrolled;
- What market the TOU should utilize (day-ahead or hourly);
- How capacity and other charges should be reflected in the TOU, if at all.

The third-party administrator of the existing RTP programs should be asked to comment on the feasibility of such a program, including a discussion of these issues, and whether a pilot could be designed to test its viability and how customers respond to it.

[3] Assuming an average wholesale market price of 4 cents/kWh on-peak and 3 cents/kWh off-peak, a delivery charge of 2.5 cents/kWh, and average usage of 600 kWh on-peak + 400 kWh off-peak, the core PEP rate would be approximately 7.6 cents/kWh on-peak and 3.8 cents/kWh off-peak (under a 2-1 price ratio). This compare to average prices under RRTP using the same cost and usage assumptions of 6.5 cents on-peak and 5.5 cents off-peak.

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